efficiency of bearing apparatus may be substantially enhanced by superconductive bearing apparatus for establishing magnetic linkages between closed stator and rotor loops forming a bearing supporting a rotation of the rotor in an equilibrium stable free state within the stator.

IN THE CLAIMS

Amendment of Claims

Amend Claim 1 as follows:

--1. (Amended) Apparatus for supporting a rotor with respect to a stator comprising

rotor closed loops formed of a material having zero electrical resistance at a temperature below a superconductivity transition temperature and which are mounted on each end of the rotor,

stator closed loops formed of the zero electrical resistance material and angularly mounted on the stator adjacent each of the closed rotor loops,

a cooling agent for cooling the closed rotor and stator closed loops to a temperature below the superconductivity transition temperature, and

apparatus for energizing the cooled closed rotor and stator loops and establishing magnetic linkages therebetween forming a bearing supporting a rotation of the rotor in an equilibrium stable free state within the stator.

Amend Claim 2 as follows:

--2. (Amended) The bearing apparatus set forth in claim 1 further comprising

sensors mounted on the stator within a magnetic field zone of the stator closed loops for registering linear shifts and angular declinations of the rotor relative to the stator.

Amend Claim 3 as follows:

--3. (Amended) The bearing apparatus set forth in claim 2 wherein the rotor closed loops each comprise

a planar short-circuited coil wound of a superconductive wire and mounted on an end of a shaft of the rotor.

Amend Claim 4 as follows:

--4. (Amended) The bearing apparatus set forth in claim 3 wherein the stator closed loops each comprise

a planar short-circuited coil wound of the superconductive wire and angularly positioned at ends of the stator around the closed rotor loops.

Amend Claim 7 as follows:

--7. (Amended) The bearing apparatus set forth in claim 6 wherein the stator comprises

a plurality of closed stator loops each wound as a coil of the superconductive wire and ones of which are mounted in the stator in [a] the plane around the rotor adjacent to a corresponding one of the closed rotor loops.

Amend Claim 9 as follows:

--9. (Amended) The bearing apparatus set forth in claim 8 wherein the stator comprises

a plurality of closed stator loops each wound as a coil of the superconductive wire and each angular spaced and mounted on the stator [between] adjacent ones of the rotor closed short-circuited loops in the planes perpendicular to [so as to be off-center of] the axis of the rotor.

Amend Claim 10 as follows:

--10. (Amended) The bearing apparatus set forth in claim 1 wherein the rotor comprises

a pair of the closed rotor loops each wound as a coil of the superconductive wire and mounted on an end of a shaft of the rotor in a plane perpendicular to an axis of the rotor shaft.

Amend Claim 11 as follows:

--11. (Amended) The bearing apparatus set forth in claim 10 wherein the stator comprises

a pair of the closed stator loops each having three coils wound of the superconductive wire and each coil angularly spaced adjacent to another one of the coils and wherein each closed stator loop is mounted on an end of the stator in a plane parallel to a corresponding one of the closed rotor loops.

Amend Claim14 as follows:

--14. (Amended) Apparatus for supporting a rotor with respect to a stator comprising

a plurality of closed rotor short-circuited loops formed of a material having zero electrical resistance at a temperature below a superconductivity transition temperature and each of which are wound as a coil of wire around the rotor and positioned along the rotor in a circular plane perpendicular about an axis of the rotor,

a plurality of closed stator loops each wound as a coil of the superconductive wire and each mounted on the stator and each angularly positioned in [a] the [plane] planes round the rotor adjacent to a corresponding one of the closed rotor short-circuited loops,

a cooling agent for cooling the closed rotor and stator loops to a temperature below the superconductivity transition temperature, and

apparatus for energizing the cooled closed rotor and stable loops and establishing magnetic linkages therebetween forming a bearing supporting a rotation of the rotor in a stable equilibrium free state within the stator.

Claims as Amended

Claim 1 as amended:

--1. (Amended) Apparatus for supporting a rotor with respect to a stator comprising

rotor closed loops formed of a material having zero electrical resistance at a temperature below a superconductivity transition temperature and which are mounted on each end of the rotor,

stator closed loops formed of the zero electrical resistance material and angularly mounted on the stator adjacent each of the closed rotor loops,

a cooling agent for cooling the closed rotor and stator closed loops to a temperature below the superconductivity transition temperature, and

apparatus for energizing the cooled closed rotor and stator loops and establishing magnetic linkages therebetween forming a bearing supporting a rotation of the rotor in an equilibrium stable free state within the stator.

Claim 2 as amended:

--2. (Amended) The bearing apparatus set forth in claim 1 further comprising

sensors mounted on the stator within a magnetic field zone of the stator closed loops for registering linear shifts and angular declinations of the rotor relative to the stator.

Claim 3 as amended:

--3. (Amended) The bearing apparatus set forth in claim 2 wherein the rotor closed loops each comprise

a planar short-circuited coil wound of a superconductive wire and mounted on an end of a shaft of the rotor.

Claim 4 as amended:

--4. (Amended) The bearing apparatus set forth in claim 3 wherein the stator closed loops each comprise

a planar short-circuited coil wound of the superconductive wire and angularly positioned at ends of the stator around the closed rotor loops.

Claim 7 as amended:

--7. (Amended) The bearing apparatus set forth in claim 6 wherein the stator comprises

a plurality of closed stator loops each wound as a coil of the superconductive wire and ones of which are mounted in the stator in the plane around the rotor adjacent to a corresponding one of the closed rotor loops.

Claim 9 as amended:

--9. (Amended) The bearing apparatus set forth in claim 8 wherein the stator comprises

a plurality of closed stator loops each wound as a coil of the superconductive wire and each angular spaced and mounted on the stator adjacent ones of the rotor closed short-circuited loops in the planes perpendicular to the axis of the rotor.

Claim 10 as amended:

--10. (Amended) The bearing apparatus set forth in claim 1 wherein the rotor comprises

a pair of the closed rotor loops each wound as a coil of the superconductive wire and mounted on an end of a shaft of the rotor in a plane perpendicular to an axis of the rotor shaft.

Claim 11 as amended:

--11. (Amended) The bearing apparatus set forth in claim 10 wherein the stator comprises

a pair of the closed stator loops each having three coils wound of the superconductive wire and each coil angularly spaced adjacent to another one of the coils and wherein each closed stator loop is mounted on an end of the stator in a plane parallel to a corresponding one of the closed rotor loops.

Claim14 as amended:

--14. (Amended) Apparatus for supporting a rotor with respect to a stator comprising

a plurality of closed rotor short-circuited loops formed of a material having zero electrical resistance at a temperature below a superconductivity transition temperature and each of which are wound as a coil of wire around the rotor and positioned along the rotor in circular planes perpendicular about an axis of the rotor,

a plurality of closed stator loops each wound as a coil of the superconductive wire and each mounted on the stator and each angularly positioned in the planes round the rotor adjacent to a corresponding one of the closed rotor short-circuited loops,

a cooling agent for cooling the closed rotor and stator loops to a temperature below the superconductivity transition temperature, and

apparatus for energizing the cooled closed rotor and stable loops and establishing magnetic linkages therebetween forming a bearing supporting a rotation of the rotor in a stable equilibrium free state within the stator.

REMARKS

The section of the specification entitled Detailed Description of the Invention has been amended to correct certain informalities occurring therein. Applicant has also submitted copes of the drawing originally filed with the application amended to conform with the drafting requirements by correcting margins and minor changes in